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<b>(21) International Application Number:</b> PCT/US99/14643 <b>(22) International Filing Date:</b> 29 June 1999 (29.06.99)			<b>(74) Agents:</b> REED, T., David et al.; The Procter & Gamble Company, 5299 Spring Grove Avenue, Cincinnati, OH 45217-1087 (US).  <b>(81) Designated States:</b> AE, AL, AM, AT, AT (Utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), EE, EE (Utility model), ES, FI, FI (Utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
<b>(30) Priority Data:</b> PCT/US98/13449 29 June 1998 (29.06.98) US PCT/US98/13497 29 June 1998 (29.06.98) US PCT/US98/13521 29 June 1998 (29.06.98) US PCT/US98/13523 29 June 1998 (29.06.98) US  <b>(71) Applicant (for all designated States except US):</b> THE PROCTER & GAMBLE COMPANY [US/US]; One Procter & Gamble Plaza, Cincinnati, OH 45202 (US).  <b>(72) Inventors; and</b> <b>(75) Inventors/Applicants (for US only):</b> EHRNSPERGER, Bruno, Johannes [DE/DE]; Westerbachstrasse 89, D-65936 Frankfurt (DE). SCHMIDT, Mattias [DE/DE]; Altkoenigweg 3, D-65510 Idstein (DE). GRUENBACHER, Dana, Paul [US/US]; 1867 Harrogate Hill Lane, Fairfield, OH 45014 (US). SCHOENE, Rainer, Walter [DE/DE]; Rombergweg 15, D-61462 Königstein (DE). WNUK, Andrew, Julian [US/US]; 450 Hidden Valley Lane, Wyoming, OH 45215 (US).			
<b>(54) Title:</b> DEVICE FOR ABSORBING OR COLLECTING A LIQUID			
<b>(57) Abstract</b> <p>The present invention relates to a device for absorbing a liquid, comprising a liquid reservoir and a porous membrane, the reservoir comprising an inlet, wherein the reservoir is at least partly occupied by a porous bulk material, wherein the membrane is hermetically sealed to or around the reservoir so that fluid passing through the inlet must pass across the membrane, and wherein the membrane has an average pore size of from 1 to 100 micrometers.</p>			

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# INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US 99/14643

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC 7 B01J20/28 C09K3/32 E02B15/04

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
 IPC 7 B01J C09K E02B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 068 830 A (UNILEVER PLC ; UNILEVER NV (NL)) 5 January 1983 (1983-01-05) page 18, line 30 - line 31; figures 1-4 ---	1-7, 11
X	EP 0 488 665 A (BEND RES INC) 3 June 1992 (1992-06-03) example 11 ---	1-5, 11
X	WO 83 02054 A (KAMME CARL GUSTAF) 23 June 1983 (1983-06-23) page 5, line 13 - line 18; claims 6,8; figure 2 ---	1-3, 5-7, 11
A	EP 0 278 476 A (DU PONT) 17 August 1988 (1988-08-17) the whole document ---	1
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International Application No

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 93 11859 A (PALL CORP) 24 June 1993 (1993-06-24) the whole document ---	1
A	US 4 817 228 A (VON MEYER ROBERT F) 4 April 1989 (1989-04-04) the whole document ---	7,8
A	WO 94 03214 A (SQUIBB BRISTOL MYERS CO) 17 February 1994 (1994-02-17) cited in the application ---	
A	EP 0 039 973 A (PROCTER & GAMBLE) 18 November 1981 (1981-11-18) -----	

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 99/14643

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0068830 A	05-01-1983	AT 17442 T	15-02-1986
		AU 554469 B	21-08-1986
		AU 8511682 A	13-01-1983
		BR 8203734 A	21-06-1983
		CA 1196620 A	12-11-1985
		DK 287882 A,B,	27-12-1982
		GR 77207 A	11-09-1984
		JP 1638061 C	31-01-1992
		JP 2055044 B	26-11-1990
		JP 58013638 A	26-01-1983
		NZ 201037 A	11-04-1986
		PH 22138 A	01-06-1988
		PT 75126 A,B	01-07-1982
		US 4797310 A	10-01-1989
		ZA 8204501 A	25-01-1984
EP 0488665 A	03-06-1992	US 5091080 A	25-02-1992
		CA 2056020 A	31-05-1992
		FI 915650 A	31-05-1992
		JP 4267983 A	24-09-1992
		PT 99660 A	31-01-1994
WO 8302054 A	23-06-1983	SE 431934 B	12-03-1984
		AT 20819 T	15-08-1986
		CA 1232436 A	09-02-1988
		EP 0108063 A	16-05-1984
		IT 1157127 B	11-02-1987
		SE 8107437 A	12-06-1983
		US 4820293 A	11-04-1989
EP 0278476 A	17-08-1988	AU 605546 B	17-01-1991
		AU 1139988 A	11-08-1988
		CA 1303828 A	23-06-1992
		JP 2665532 B	22-10-1997
		JP 63283746 A	21-11-1988
		US 4965129 A	23-10-1990
WO 9311859 A	24-06-1993	US 5271842 A	21-12-1993
		CA 2083076 A	11-06-1993
		EP 0619755 A	19-10-1994
US 4817228 A	04-04-1989	NONE	
WO 9403214 A	17-02-1994	US 5678564 A	21-10-1997
		AU 679936 B	17-07-1997
		AU 4997593 A	03-03-1994
		CA 2141855 A	17-02-1994
		EP 0653928 A	24-05-1995
		JP 8510924 T	19-11-1996
		NO 950422 A	29-03-1995
		NZ 255677 A	26-05-1997
		US 5911222 A	15-06-1999
		ZA 9305721 A	07-06-1994
EP 0039973 A	18-11-1981	US 4324247 A	13-04-1982
		CA 1152702 A	30-08-1983
		JP 56169801 A	26-12-1981